
NEW RECORDS OF CADDISFLIES (TRICHOPTERA) FROM KENTUCKY¹

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ABSTRACT: Six species of caddisflies discovered in eastern Kentucky are added to the previously known fauna of the state. One widespread species, *Heteroplectron americanum*, represents the only species of the family Calamoceratidae known from Kentucky. Other widespread species reported are *Ceratopsyche ventura* and *Diptertrichia metaqui* (Hydropsychidae) and *Neophylax fuscus* and *Goerita betteni* (Limnephilidae). One relatively rare species, *Agapetus minutus* (Glossosomatidae), is also reported. The number of caddisfly species now known from Kentucky is 181.

Resh (1975) recorded 175 species of caddisflies from Kentucky. Surber-net collections (Phillippi 1984) from Robinson Forest in Breathitt Co., eastern Kentucky, revealed larvae of two additional species: *Agapetus minutus* (Glossosomatidae) and *Ceratopsyche ventura* (Hydropsychidae). Qualitative collections from five other eastern Kentucky counties (Clark, McCreary, Menifee, Powell, and Whitley) revealed larvae of four additional species: *Diptertrichia metaqui* (Hydropsychidae), *Goerita betteni* (Limnephilidae), *Heteroplectron americanum* (Calamoceratidae), and *Neophylax fuscus* (Limnephilidae). There are no Kentucky specimens of these species housed at the University of Michigan Museum of Zoology, Ann Arbor; the Academy of Natural Sciences of Philadelphia (ANSP); the National Museum of Natural History, Washington, D.C. (USNM); the University of Louisville; or the University of Kentucky, Lexington. The specimens reported herein are deposited in the Eastern Kentucky University Insect Collection, Richmond.

Little is known about the habitat of immature *Agapetus minutus*. Three pharate adults were collected on 23 June 1978 in two first-order streams (upper Falling Rock, 5.8 km NE of Noble, Noble 7.5 min Quad; Field Branch, 4 km NE of Noble, Noble 7.5 min Quad) typical of those found in the highly dissected, undisturbed portions of the Cumberland Plateau of eastern Kentucky. The sites lie within the totally forested watersheds of Robinson Forest (Phillippi and Boebinger 1986), a 6000 ha protected forest research station; water quality in the forest is excellent. Substrates consisted of sand, gravel, and cobble with occasional exposed bedrock. Both streams were flowing on the collection date; however, flow may cease during dry summers (Phillippi 1984). Approximately 150 *Agapetus* larvae were

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collected within the fourth-order Buckhorn Creek drainage (11,396 ha). However, differentiation of *Agapetus* larvae (Wiggins 1977) is not presently possible, and the relative abundance of *A. minutus* in the drainage is unknown. One other congener, *A. tomus*, has been reported from Robinson Forest, and three additional species (*A. hessi*, *A. illini*, and *A. nr rossi*) are known from other widely scattered Kentucky counties (Resh 1975).

The only specimens of *Agapetus minutus* found in the museums previously listed were from White Clay Creek, Chester Co., PA (ANSP). The species also has been reported from extreme southeast TN in Polk Co. (Etnier and Schuster 1979), the northern Piedmont region of DE (Lake 1984), and in central NY in Tompkins Co. (Sibley 1926). These records and ours suggest that *A. minutus* is sporadically distributed in the Appalachian Mountains and Piedmont and Cumberland Plateau. Its apparent sporadic distribution may be due, in part, to the current inability to assign larvae to species.

Other trichopteran species associated with *A. minutus* at the collection sites were *Ceratopsyche sparna*, *C. ventura*, *Diplectrona modesta*, *Dolophilodes distinctus*, *Neophylax consimilis*, *Rhyacophila carolina*, and *R. parantra*.

Ceratopsyche ventura is a more abundant and widespread species than *Agapetus minutus*. In Robinson Forest, a total of 277 larval *C. ventura* was collected from six sites in the Buckhorn Creek drainage (23 June 9, 21, July, 22 Aug, 21 Oct 1978; 29 Apr, 1 Aug 1979; 1 Aug 1981). The sites (all Noble 7.5 min Quad) include the two previously mentioned for *A. minutus*, an additional first-order stream (upper Little Millseat, 4.1 km NE of Noble), a second-order stream (lower Falling Rock, 5.3 km NE of Noble), a third-order stream (Clemons Fork, 2.3 E of Noble), and fourth-order Buckhorn Creek (2.3 km SW of Noble). The sites, with the exception of Buckhorn Creek, are located within Robinson Forest and water quality is, therefore, exceptionally high (Phillippi 1984, Phillippi and Boebinger 1986).

Scattered collections of *C. ventura* have been reported from Newfoundland, Ontario, NY, TN, and VA (Schuster and Etnier 1978, Etnier and Schuster 1979). Specimens from WV, PA, and MN were located at USNM. Based on past collections and ours, the distribution of *C. ventura* is sporadic in eastern Canada and broadly scattered throughout the Appalachian Mountains and Cumberland Plateau.

Other trichopteran species associated at the collection sites with *Ceratopsyche ventura* were *C. campyla*, *C. cheilonis*, *C. sparna*, *Diplectrona modesta*, *Dolophilodes distinctus*, *Goera* cf. *stylata*, *Helicopsyche borealis*, *Hydropsyche betteni*, *H. dicantha*, *Molanna blenda*, *Neophylax consimilis*, *Rhyacophila carolina*, and *R. parantra*.

Of the 15 North American species of *Neophylax*, five have been reported previously from Kentucky: *N. autumnus*, *N. ayanus*, *N. concinnus*, *N. consimilis*, and *N. nacatus* (Resh 1975). *Neophylax fuscus* (reported herein) is not an unexpected addition to the caddisfly fauna of Kentucky considering its wide range (MI, MN, MO, NH, TN, VA) (Ross 1944, Etnier and Schuster 1979). Many larvae as well as adults of the species were collected from Boone Creek (Grimes Mill Road crossing, 3 km above mouth, Ford 7.5 min Quad) in Clark County on the western edge of the Cumberland Plateau (10 October 1983). Other caddisfly species also found at the site were *Dolophilodes distinctus* and *Pycnopsyche lepida*.

Numerous larvae of *Heteroplectron americanum* were collected 9 April 1983 from the mouth of an unnamed first-order tributary of Rock Creek in McCreary Co. (Great Meadows Campground on KY 1363, 13 km SSW of Whitley City, Bell Farm 7.5 min Quad). The stream was low gradient with a sandy bottom thickly littered with detritus. Previously, the species was known from Quebec, NY, NH, (Wiggins 1977), NC (Brigham et al 1982), SC (Morse et al 1980), VA (Parker and Voshell 1981), DE (Lake 1984), and GA (Etnier and Schuster 1979). This is the only record of a member of the Calamoceratidae from Kentucky.

Goerita betteni is apparently a localized (Wiggins 1977) Appalachian species previously known from NC, OH, PA, TN, VA, and WV. It has also been taken from three localities in Kentucky: a first-order tributary to the Cumberland River in Cumberland Falls State Park, Whitley Co. (adults and larvae: 18 May 1985), an unnamed first-order tributary to Gladie Creek (off KY 716, Pomeroyton 7.5 min Quad), Menifee Co. (larvae: May 1985) and a first-order tributary to Rock Creek, McCreary Co. (larvae: 9 April 1985; 1 km above Great Meadows campground on KY 1363, approx. 13 km SSW of Whitley City, Bell Farm 7.5 min Quad). Each collection site was a high gradient, permanent, first-order stream with a sandstone substrate. Larvae were collected on the vertical faces of falls and dripping areas and were associated with bryophytes and filamentous algae. Adults were collected while swarming around a 1.5 m waterfall (Whitley Co. site) at 1130 hr. Caddisfly species associated with *G. betteni*, were *Diplectrona metaqui* and *Psilotreta rufa*.

Several larvae of *Diplectrona metaqui* were also collected from a first-order tributary to Rock Creek in the vicinity of the McCreary Co. site mentioned for *G. betteni*. Larvae of this species also have been taken from Powell Co. in a first-order tributary to the Red River (11 Nov 1979; on KY 77, 10 km NNE of Nada Tunnel, Slade 7.5 min Quad). At both sites the habitat consisted of an intermittent, high gradient, first-order stream underlain with sandstone rubble. The larvae were collected under rocks in moist (not flowing) areas. Ross (1970) and Wiggins (1977) listed

Kentucky as part of the range of this species but no localities were given. Resh (1975) did not list the species for Kentucky. The species appears to be sporadically distributed in the eastern U.S. including GA, IL, IN, NC, TN.

Each of the six species reported herein was found in (or at the western edge of) the Cumberland Plateau of eastern Kentucky. Further collecting in this highly dissected and mountainous geographic area may yield new records of additional caddisfly species presently unknown from Kentucky.

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